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Standard Form 298 (Rev. 8-98)
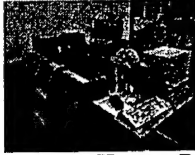Prescribed by ANSI Std. Z39-18

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Introductory remarks,

•This presentation is an update on GVP
status and progress review.

• SA Conference attendees should
know of its availability

Crewstation Technology Laboratory (CTL)

- Advanced Technologies for NAVY Crewstations
- Methods and Procedures for Behavioral Test and Analysis.
  - Human Performance Evaluation
  - Modeling & Simulation
    - Rapid prototyping
  - Helmet Mounted Displays
  - Mission Planning & Rehearsal
  - Display Symbology RDT&E
  - Data Visualization
    - Architecture, Information Content, Netwo
  - Video Data Recording and Analysis
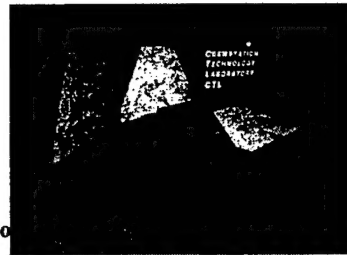
This is the home base for GVP.
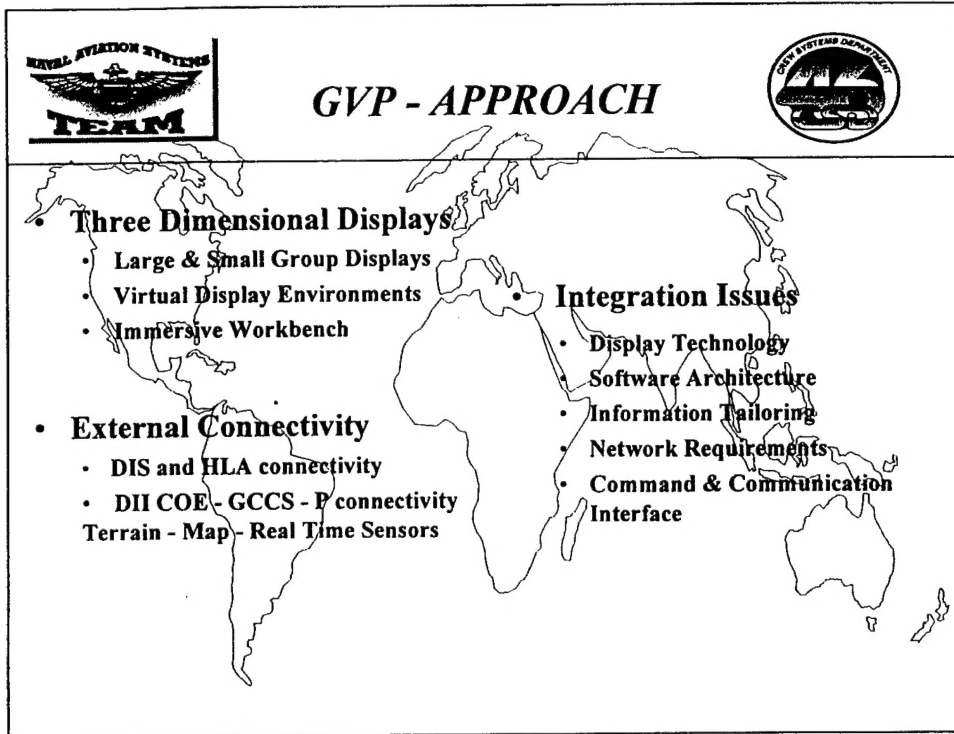
- Where CTL is and who we are.
- What we do.

- GVP -
Advanced Visualization Software

RSDUNN

GVP is Primary Software for Advanced Visualization
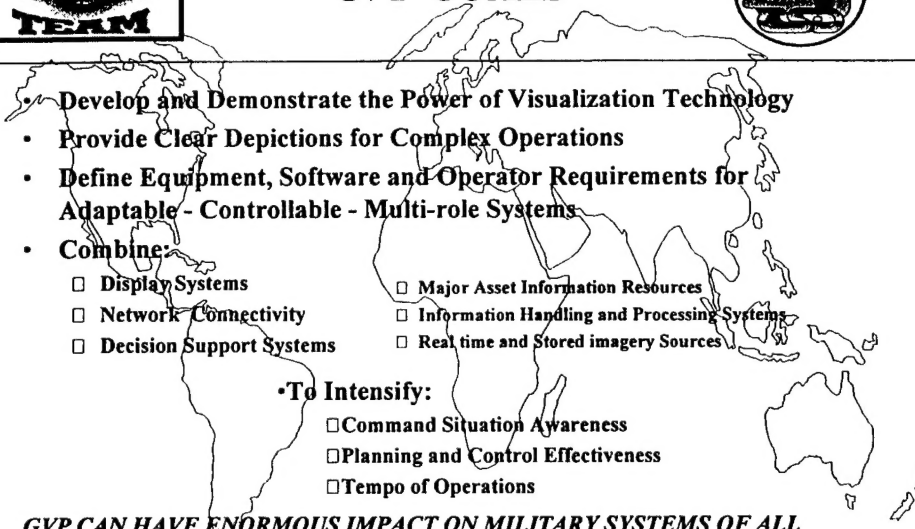
• State overall goals from next slide but do not display it.

•Developed to evaluate the power of advanced visual display tools

GVP - APPROACH

- Three Dimensional Displays
  - Large & Small Group Displays
  - Virtual Display Environments
  - Immersive Workbench

- External Connectivity
  - DIS and HLA connectivity
  - DII COE - GCCS - P connectivity
  - Terrain - Map - Real Time Sensors

- Integration Issues
  - Display Technology
  - Software Architecture
  - Information Tailoring
  - Network Requirements
  - Command & Communication Interface

Not used in presentation but contained in proceedings

4

GVP GOALS

- Develop and Demonstrate the Power of Visualization Technology
- Provide Clear Depictions for Complex Operations
- Define Equipment, Software and Operator Requirements for Adaptable - Controllable - Multi-role Systems
- Combine:
  - ☐ Display Systems
  - ☐ Network Connectivity
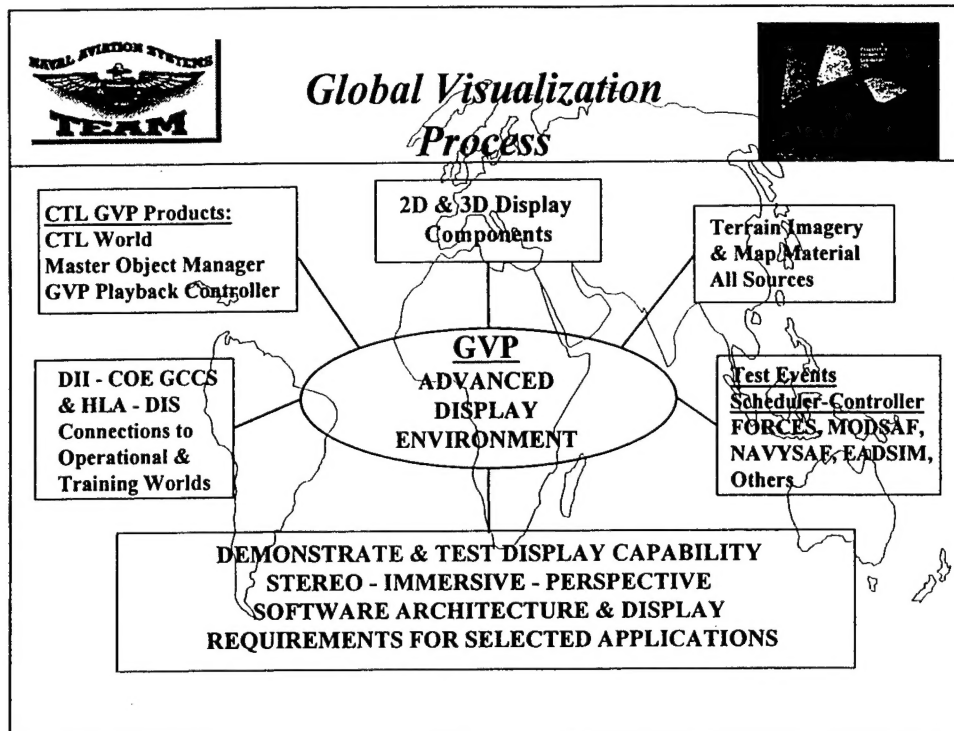 - ☐ Decision Support Systems
  - ☐ Major Asset Information Resources
  - ☐ Information Handling and Processing Systems
  - ☐ Real time and Stored imagery Sources

  - To Intensify:
    - ☐ Command Situation Awareness
    - ☐ Planning and Control Effectiveness
    - ☐ Tempo of Operations

GVP CAN HAVE ENORMOUS IMPACT ON MILITARY SYSTEMS OF ALL TYPES FOR PLANNING, SIMULATION, TRAINING, TESTING, REHEARSAL AND COMBAT OPERATIONAL CONTROL

Not used in presentation but contained in proceedings

Global Visualization Process

CTL GVP Products:
CTL World
Master Object Manager
GVP Playback Controller

2D & 3D Display Components

Terrain Imagery & Map Material All Sources

DII - COE GCCS & HLA - DIS Connections to Operational & Training Worlds

GVP ADVANCED DISPLAY ENVIRONMENT

Test Events Scheduler-Controller FORCES, MODSAF, NAVYSAF, EADSIM, Others

DEMONSTRATE & TEST DISPLAY CAPABILITY
STEREO - IMMERSIVE - PERSPECTIVE
SOFTWARE ARCHITECTURE & DISPLAY
REQUIREMENTS FOR SELECTED APPLICATIONS

The major parts of the GVP System shown here and in next slide

•It is all-source geospecific and holds a world model all the time

•WGS-84 standard geometry

•has connectivity to Simulations, M&S Packages,Operations

•CTL has M&S drivers to create military scenarios for visualization

GVP OVERVIEW
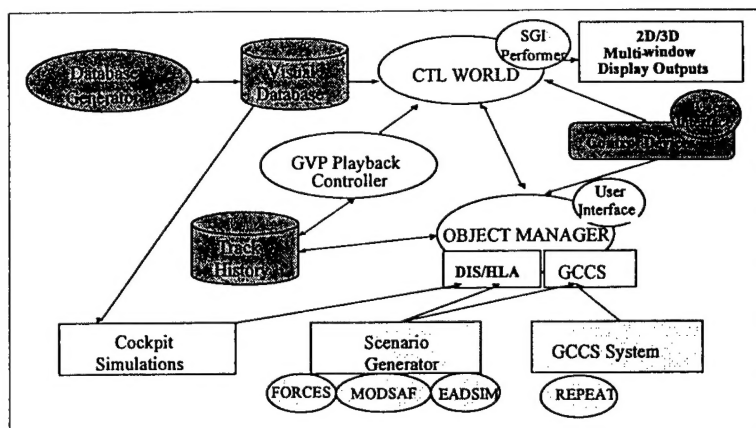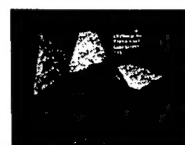
- CTL World can hold earth at 4 cm. resolution - fully scaleable - full stereo
- Object Manager can be a server for multiple displays
- Playback Controller for analysis
- All this software is operational and government owned

Global Visualization
Process (GVP)

STATUS and ACCOMPLISHMENTS - FY '00

- GVP Operational, System Integration Fully Demonstrated
- Unique CTL WORLD Software for Display Control Completed
- Fully Scalable, Multi Resolution, Geo-specific, Geo-referenced, All-Source, Terrain Visualization. Numerous Example Areas
- Connectivity to Operational and Simulation Domains via DII COE, HLA & DIS - Secure Operations Enabled
- Extensive Operator and User Interface Components and Features
- Accessible and Flexible Basic Software can be Tailored for Specific Applications
- Master Object Manager System Control Module Operational

Not used in presentation but contained in proceedings

Global Visualization Process (GVP)

STATUS and ACCOMPLISHMENTS - FY '00

- Reference Geometry, WGS-84, Preserves Positional Data Accuracy.   Fully Interoperable with Navigation Systems
- GVP is Efficient Software, High Update Rates, Large Area Coverage and High Numbers of Fixed and Moving Models
- Multi Format Video Outputs for All Types of Displays
- Full 3D Binocular Stereoscopic Display Outputs - Several Modes
- Terrain Database Generation from All Sources
- Flexible and Accessible User Interfaces
- GVP is Government Owned and Developed. Revision not restricted by Inaccessible Software
- GVP is ready <u>NOW</u> for Application Tailoring and Testing

Not used in presentation but contained in proceedings

Global Visualization Process (GVP)

STATUS and ACCOMPLISHMENTS - FY 01

- PC Version Operational. Advanced PC Class Computers Can Run GVP under LINUX
- GVP Versions Consolidated (IRIX-LINUX)
- MOM Architecture Supports Multiple Coordinated GVP Displays
- Completed two Major Trade Show Demos (I/ITSE)
- Applications: underway, pending, proposed
  - UAV Training Support Operational with UAV - TCS Database
  - NRL Display Support Installation
  - NASA Johnson Space Center Installation (Mars Data)
  - Flight Simulation at CTL Since '98
  - Sensor Modeling R&D, Full surround view with HMD
  - Proposed Navy-USAF C2 Air Defense Site Displays
  - Proposed Navy Aircraft Synthetic Vision System

New Developments in GVP listed here

•PC Version developed

•LINUX and the original SGI version are ONE program

•Strong progress on operational UAV training support application

•Underway, pending and proposed applications

Global Visualization Process (GVP)

For GVP Information - Contact Us at CTL

GVP is ready <u>NOW</u> for Application Tailoring and Testing
Find Out How to Put GVP to Work in YOUR Project!

Call or e-mail to obtain
DVD Demo <u>"GVP - The Movie"</u>
Visit CTL at NAWCAD PAX
to See GVP in Operation

R.S.Dunn
48110 Shaw Road B2187
Patuxent River MD 20670-1906 e-mail:
DunnRS@navair.navy.mil

Find out more about this available process.

•Call us

•Get the DVD Demo

•Visit CTL

Global Visualization Process

Potential Civil and Navy Applications of GVP

- Highway Network Status Depiction, Resource Allocation, Construction and Rights of Way
- State Civil Defense and Emergency Preparedness, Visualization for Disaster Response Control and Coordination
- Power, Rail, Communication Support
- Wildlife Management and Range Data
- Environmental Impact, Water Supply, Aquifer Usage, Contamination Events
- Air Traffic Depiction and Control
- Bay Status, Ship Traffic and Spill Control, Maritime Data
- Beach Erosion and Seaboard Storm Impact

- Flight Simulation for Training & RDT&E
- Mission Planning & Mission Rehearsal
- Modeling and Simulation for System Development, Prototyping, Concept Formulation, Wargame & Major Operational Exercise Support
- Reconnaissance and Surveillance for Targeting, Logistics, Special Forces
- C4ISR Display Support, SAR & Test Range Operations
- UAV & UCAV Mission Control
- Cockpit Displays for Flight & Mission Control - A/C Synthetic Vision Systems
- Major Payoffs in Common Architecture, Interoperability & Reusable Models

Not used in presentation but contained in proceedings

There is a 2 Min video demonstration taken from the GVP DVD
(The DVD has been approved for public release)